

1 new claims 15-18. Please add new claims 15-18. Please amend  
2 claims 9-14.

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4 5. (Twice Amended but now Canceled) A selectable waveguide  
5 having a first position and a second position for respectively  
6 communicating first or second signals from an antenna feed to  
7 respective first and second probes, the selectable waveguide  
8 comprising,

9 an antenna feed port coupled to the antenna feed for  
10 communicating the signals between the antenna feed and the  
11 first and second probes,

12 a first waveguide section having a first shape and a first  
13 cross-section for coupling to the antenna feed port for  
14 communicating the first signal, the first shape is straight,

15 a first port for coupling the first probe to the first  
16 waveguide section for communicating the first signal between  
17 the first probe and the first waveguide section,

18 a second waveguide section having a second shape and a  
19 second cross-section for coupling to the antenna feed port for  
20 communicating the second signal, the second shape is bent at  
21 ninety degrees with a forty-five degree reflective surface,

22 a second port for coupling the second probe to the second  
23 waveguide section for communicating the second signal between  
24 the second probe and the second waveguide section, [the first  
25 and the second shapes are selected from the group consisting of  
26 straight and bent at ninety degrees with a forty-five degree  
27 reflective surface,] the first and second cross sections are  
28 selected from the\_group consisting of square and circular, the

1 first and second shapes and the first and second cross sections  
2 enable concurrent isolated communications of the first and  
3 second signals through either one of the first and second  
4 waveguide sections when the first and second signals are  
5 orthogonally polarized respecting each other, and

6 an element for supporting the first and second waveguide  
7 sections, the element having a first position for communicating  
8 the first signal between the antenna feed port through the  
9 first waveguide section to the first port, the element having a  
10 second position for communicating the second signal between the  
11 antenna feed port through the second waveguide section to the  
12 second port.

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14 6. (Twice Amended but now Canceled) The selectable  
15 waveguide of claim 5 wherein,

16 the element is a rotating element,  
17 the first signal is a first polarized signal,  
18 the first waveguide shape is straight,  
19 the second signal is a second polarized signal,  
20 the second waveguide shape is bent at ninety degrees  
21 having a forty-five degree reflective surface, and

22 the selectable waveguide is for selecting the  
23 communication[g] of either the first or second polarized  
24 signals, wherein the first and second polarized signals being  
25 orthogonal [respecting] with respect to each other.

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1 7. (Amended and Rewritten) The selectable waveguide of claim  
2 5 wherein,

3 the element is a rotating element,  
4 the first signal is a circularly polarized signal,  
5 the first waveguide shape is straight,  
6 the second signal is a linearly polarized signal,  
7 the second waveguide shape is bent at ninety degrees  
8 having a forty-five degree reflective surface, and  
9 the selectable waveguide is for selectively communicating  
10 either the circularly polarized signal or the linearly  
11 polarized signal.  
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13 8. (Twice Amended but now Canceled) A selectable waveguide  
14 having a first position and a second position for respectively  
15 communicating first or second signals from an antenna feed to  
16 respective first and second probes, the selectable waveguide  
17 comprising,

18 an antenna feed port coupled to the antenna feed for  
19 communicating the signals between the antenna feed and the  
20 first and second probes,

21 a first waveguide section having a first shape and a first  
22 cross-section for coupling to the antenna feed port for  
23 communicating the first signal, the first shape is straight,

24 a first port for coupling the first probe to the first  
25 waveguide section for communicating the first signal between  
26 the first probe and the first waveguide section,

27 a second waveguide section having a second shape and a  
28 second cross-section for coupling to the antenna feed port for

1 communicating the second signal, the second shape is bent at  
2 ninety degrees with a forty-five degree reflective surface,  
3 a second port for coupling the second probe to the second  
4 waveguide section for communicating the second signal between  
5 the second probe and the second waveguide section, the first  
6 and second cross sections are selected from the group  
7 consisting of square and circular, the first and second shapes  
8 and the first and second cross sections enable concurrent  
9 isolated communications of the first and second signals through  
10 either one of the first and second waveguide sections when the  
11 first and second signals are orthogonally polarized respecting  
12 each other, and

13 an element for supporting the first and second waveguide  
14 sections, the element having a first position for communicating  
15 the first signal between the antenna feed port through the  
16 first waveguide section to the first port, the element having a  
17 second position for communicating the second signal between the  
18 antenna feed port through the second waveguide section to the  
19 second port,

20 [The selectable waveguide of claim 5] wherein:

21 the second signal comprises a high frequency signal and a  
22 low frequency signal[,];

23 the reflective surface is a frequency selective reflective  
24 surface for reflecting the low frequency signal to the second  
25 port and for passing the high frequency signal to the first  
26 port[,]; and

27 the second waveguide section comprises a waveguide  
28 extension extending from the frequency selective reflective

1 surface and the first port for communicating the high frequency  
2 signal to the first probe through the first port when the  
3 selectable waveguide is in the second position.

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5 9. (Twice Amended) A selectable waveguide arrangement for  
6 respectively communicating first[,] or second or third signals  
7 from an antenna feed to respective first[,] and second and  
8 third probes, the selectable waveguide arrangement comprising a  
9 front end selectable waveguide and a back end selectable  
10 waveguide, wherein,

11 the front end selectable waveguide comprises:

12 an antenna feed port coupled to the antenna feed for  
13 communicating the first and second and third signals between  
14 the antenna feed and the first and second and third probes,  
15 respectively;

16 a first front end waveguide section having a first front  
17 end shape for coupling to the antenna feed port for  
18 communicating the second and third signals;

19 a first front end port for coupling to the back end  
20 selectable waveguide for communicating the second and third  
21 signals between the antenna feed port and the back end  
22 selectable waveguide;

23 a second front end waveguide section having a second front  
24 end shape for coupling to the antenna feed port for  
25 communicating the first signal;

26 a second front end port for coupling the first probe to  
27 the second front end waveguide section for communicating the  
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1 first signal between the antenna feed port and the first probe  
2 through the second front end waveguide section; and

3 a front end element for supporting the first front end  
4 waveguide section and the second front end waveguide section,  
5 the front end element has a first front end position for  
6 communicating the second and third signals between the antenna  
7 feed port through the first front end waveguide section through  
8 the first front end port to the back end selectable waveguide,  
9 the front end element has a second front end position for  
10 communicating the first signal between the antenna feed port  
11 through the second front end waveguide section through the  
12 second front end port to the first probe, and wherein,

13 the back end selectable waveguide comprises:

14 a back end input port coupled to the first front end port  
15 for communicating the second and third signals between the  
16 first front end port respectively to the second and third  
17 probes;

18 a first back end waveguide section having a first back end  
19 shape for coupling to the back end input port for communicating  
20 the second and third signals;

21 a first back end port for coupling to the first back end  
22 waveguide section for communicating the third signal between  
23 the back end input port and the third probe through the first  
24 back end waveguide section;

25 a second back end waveguide section having a second back  
26 end shape for coupling to the back end input port for  
27 communicating the second signal;

1 a second back end port for coupling the second back end  
2 waveguide section to the second probe for communicating the  
3 second signal between the back end input port and the second  
4 probe through the second back end waveguide section; and

5 a back end element for supporting the first back end  
6 waveguide section and the second back end waveguide section,  
7 the back end element has a first back end position for  
8 communicating the third signal between the back end input port  
9 through the first back end waveguide section through the first  
10 back end port to the third probe, the back end element has a  
11 second back end position for communicating the second signal  
12 between the back end input port through the second back end  
13 waveguide section through the second back end port to the  
14 second probe, one of the first and second front end shapes is  
15 straight and the other is bent at ninety degrees, one of the  
16 third and fourth back end shapes is straight and the other is  
17 bent at ninety degrees, the first and second and third and  
18 fourth waveguide sections have cross sections selected from the  
19 group of square and circular.

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1 14. (Twice Amended) The selectable waveguide arrangement of  
2 claim 9, wherein the third signal comprises a fourth signal and  
3 a fifth signal, the selectable waveguide arrangement is coupled  
4 to a fourth probe and a fifth probe, the selectable waveguide  
5 arrangement further comprises,

6 a coupler coupled to the first front end port and  
7 comprising a fourth port and fifth port respectively coupled to  
8 the fourth and fifth probes, the fourth and fifth signals are  
9 orthogonally polarized [respecting] with respect to each other  
10 and the fourth and fifth probes are polarization sensitive to  
11 respectively communicate the fourth and fifth signals between  
12 the antenna feed port and the fourth and fifth probes through  
13 the first front end waveguide section and fourth and fifth  
14 ports.

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1 15. (New) A selectable waveguide having a first position and a  
2 second position for respectively communicating first or second  
3 signals from an antenna feed to respective first and second  
4 probes, the selectable waveguide comprising,

5 an antenna feed port coupled to the antenna feed for  
6 communicating the <sup>respective</sup> signals between the antenna feed and the  
7 first and second probes,

8 a first waveguide section having a first shape and a first  
9 cross-section for coupling to the antenna feed port for  
10 communicating the first signal, the first shape is straight,

11 a first port for coupling the first probe to the first  
12 waveguide section for communicating the first signal between  
13 the first probe and the first waveguide section,

14 a second waveguide section having a second shape and a  
15 second cross-section for coupling to the antenna feed port for  
16 communicating the second signal, the second shape is bent at  
17 ninety degrees with a forty-five degree reflective surface,

18 a second port for coupling the second probe to the second  
19 waveguide section for communicating the second signal between  
20 the second probe and the second waveguide section, the first  
21 and second cross sections are selected from the group  
22 consisting of square and circular, the first and second shapes  
23 and the first and second cross sections enable concurrent  
24 isolated communications of the first and second signals through  
25 either one of the first and second waveguide sections when the  
26 first and second signals are orthogonally polarized respecting  
27 each other, and *with respect to*

an element for supporting the first and second waveguide sections, the element having a first position for communicating the first signal between the antenna feed port through the first waveguide section to the first port, the element having a second position for communicating the second signal between the antenna feed port through the second waveguide section to the second port.

16. (New) The selectable waveguide of claim 15 wherein,

the element is a rotating element,

the first signal is a first polarized signal,

the first waveguide shape is straight,

the second signal is a second polarized signal,

the second waveguide shape is bent at ninety degrees having a forty-five degree reflective surface, and

the selectable waveguide is for selecting the communication of either the first or second polarized signals, wherein the first and second polarized signals being orthogonal with respect to each other.

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1 17. (New) The selectable waveguide of claim 15 wherein,  
2 the element is a rotating element,  
3 the first signal is a circularly polarized signal,  
4 the first waveguide shape is straight,  
5 the second signal is a linearly polarized signal,  
6 the second waveguide shape is bent at ninety degrees  
7 having a forty-five degree reflective surface, and  
8 the selectable waveguide is for selectively communicating  
9 either the circularly polarized signal or the linearly  
10 polarized signal.  
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1 18. (New) A selectable waveguide having a first position and a  
2 second position for respectively communicating first or second  
3 signals from an antenna feed to respective first and second  
4 probes, the selectable waveguide comprising,

5 an antenna feed port coupled to the antenna feed for  
6 communicating the <sup>respective</sup> signals between the antenna feed and the  
7 first and second probes,

8 a first waveguide section having a first shape and a first  
9 cross-section for coupling to the antenna feed port for  
10 communicating the first signal, the first shape is straight,

11 a first port for coupling the first probe to the first  
12 waveguide section for communicating the first signal between  
13 the first probe and the first waveguide section,

14 a second waveguide section having a second shape and a  
15 second cross-section for coupling to the antenna feed port for  
16 communicating the second signal, the second shape is bent at  
17 ninety degrees with a forty-five degree reflective surface,

18 a second port for coupling the second probe to the second  
19 waveguide section for communicating the second signal between  
20 the second probe and the second waveguide section, the first  
21 and second cross sections are selected from the group  
22 consisting of square and circular, the first and second shapes  
23 and the first and second cross sections enable concurrent  
24 isolated communications of the first and second signals through  
25 either one of the first and second waveguide sections when the  
26 first and second signals are orthogonally polarized respecting <sup>with respect to</sup>  
27 each other, and  
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1 an element for supporting the first and second waveguide  
2 sections, the element having a first position for communicating  
3 the first signal between the antenna feed port through the  
4 first waveguide section to the first port, the element having a  
5 second position for communicating the second signal between the  
6 antenna feed port through the second waveguide section to the  
7 second port,

8 wherein:,

9 the second signal comprises a high frequency signal and a  
10 low frequency signal;

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11 the reflective surface is a frequency selective reflective  
12 surface for reflecting the low frequency signal to the second  
13 port and for passing the high frequency signal to the first  
14 port; and

15 the second waveguide section comprises a waveguide  
16 extension extending from the frequency selective reflective  
17 surface and the first port for communicating the high frequency  
18 signal to the first probe through the first port when the  
19 selectable waveguide is in the second position.

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1 9. (Twice Amended and Rewritten) A selectable waveguide  
2 arrangement for respectively communicating first or second or  
3 third signals from an antenna feed to respective first and  
4 second and third probes, the selectable waveguide arrangement  
5 comprising a front end selectable waveguide and a back end  
6 selectable waveguide, wherein,

7 the front end selectable waveguide comprises:

8 an antenna feed port coupled to the antenna feed for  
9 communicating the first and second and third signals between  
10 the antenna feed and the first and second and third probes,  
11 respectively;

12 a first front end waveguide section having a first front  
13 end shape for coupling to the antenna feed port for  
14 communicating the second and third signals;

E2 15 a first front end port for coupling to the back end  
16 selectable waveguide for communicating the second and third  
17 signals between the antenna feed port and the back end  
18 selectable waveguide;

19 a second front end waveguide section having a second front  
20 end shape for coupling to the antenna feed port for  
21 communicating the first signal;

22 a second front end port for coupling the first probe to  
23 the second front end waveguide section for communicating the  
24 first signal between the antenna feed port and the first probe  
25 through the second front end waveguide section; and

26 a front end element for supporting the first front end  
27 waveguide section and the second front end waveguide section,  
28 the front end element has a first front end position for

1 communicating the second and third signals between the antenna  
2 feed port through the first front end waveguide section through  
3 the first front end port to the back end selectable waveguide,  
4 the front end element has a second front end position for  
5 communicating the first signal between the antenna feed port  
6 through the second front end waveguide section through the  
7 second front end port to the first probe, and wherein,  
8 the back end selectable waveguide comprises:  
9 a back end input port coupled to the first front end port  
10 for communicating the second and third signals between the  
11 first front end port respectively to the second and third  
12 probes;  
13 a first back end waveguide section having a first back end  
14 shape for coupling to the back end input port for communicating  
15 the second and third signals;  
16 a first back end port for coupling to the first back end  
17 waveguide section for communicating the third signal between  
18 the back end input port and the third probe through the first  
19 back end waveguide section;  
20 a second back end waveguide section having a second back  
21 end shape for coupling to the back end input port for  
22 communicating the second signal;  
23 a second back end port for coupling the second back end  
24 waveguide section to the second probe for communicating the  
25 second signal between the back end input port and the second  
26 probe through the second back end waveguide section; and  
27 a back end element for supporting the first back end  
28 waveguide section and the second back end waveguide section,

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1 the back end element has a first back end position for  
2 communicating the third signal between the back end input port  
3 through the first back end waveguide section through the first  
4 back end port to the third probe, the back end element has a  
5 second back end position for communicating the second signal  
6 between the back end input port through the second back end  
7 waveguide section through the second back end port to the  
8 second probe, one of the first and second front end shapes is  
9 straight and the other is bent at ninety degrees, one of the  
10 third and fourth back end shapes is straight and the other is  
11 bent at ninety degrees, the first and second and third and  
12 fourth waveguide sections have cross sections selected from the  
13 group of square and circular.

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1 10. (Amended and Rewritten) The selectable waveguide  
2 arrangement of claim 9 wherein,

3 the first front end waveguide section shape is straight  
4 and uniform in cross section and extends from the antenna feed  
5 port to the first front end port,

6 the first back end waveguide section shape is straight and  
7 uniform in cross section and extends from the back end input  
8 port to the first back end port,

9 the second front end waveguide section shape is bent at  
10 ninety degrees having a forty-five degree reflective surface  
11 and uniform in cross section and extends from the antenna feed  
12 port to the second front end port, and

13 the second back end waveguide section shape is bent at  
14 ninety degrees having a forty-five degree reflective surface  
15 and uniform in cross section and extends from the back end  
16 input port to the second back end port.

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19 11. (Amended and Rewritten) The selectable waveguide  
20 arrangement and claim 9 wherein,

21 the first and second front end waveguide sections have a  
22 <sup>larger</sup> smaller cross section than the first and second back end  
23 waveguide sections, respectively.

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25 12. (Amended and Rewritten) The selectable waveguide  
26 arrangement of claim 9, wherein the second and third signals  
27 are respective polarized signals and are orthogonally polarized  
28 <sup>with respect to</sup> respecting each other.

1 13. The selectable waveguide arrangement of claim 9, wherein  
2 the first front end port is a tapered port for attenuating low  
3 frequency components of the second and third signals.  
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8 14. (Twice Amended and Rewritten) The selectable waveguide  
9 arrangement of claim 9, wherein the third signal comprises a  
10 fourth signal and a fifth signal, the selectable waveguide  
11 arrangement is coupled to a fourth probe and a fifth probe, the  
12 selectable waveguide arrangement further comprises,

E4 13 a coupler coupled to the first front end port and  
14 comprising a fourth port and fifth port respectively coupled to  
15 the fourth and fifth probes, the fourth and fifth signals are  
16 orthogonally polarized with respect to each other and the  
17 fourth and fifth probes are polarization sensitive to  
18 respectively communicate the fourth and fifth signals between  
19 the antenna feed port and the fourth and fifth probes through  
20 the first front end waveguide section and fourth and fifth  
21 ports.  
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